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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/468,450	12/21/1999	ARTHUR W. CHESTER	10208-1	3654

7590 02/13/2002

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EXAMINER

PREISCH, NADINE G

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 02/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/468,450

Applicant(s)

CHESTER ET AL.

Examiner

Nadine Preisch

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

Claim 9 is objected to because of the following informalities: The term "sulfer" should be changed to "sulfur". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Absil et al.(5,456,821) in view of Pine(3,904,550) and Kearby (3,271,299).

Applicants are claiming a process for the catalytic cracking of a hydrocarbon in the presence of a large pore aluminophosphate catalyst.

The reference of Absil et al.(5,456,821) discloses a catalytic cracking process involving the use of a large pore aluminophosphate composition with pore openings greater than 7 angstroms. See column 5, lines 15-30, column 6, lines 52-63 and column 7, lines 11-18. The catalyst may comprise a zeolite-Y. See column 7, lines 8-10. The catalytic conversion is

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suitable for the production of gasoline from a heavy feed such as gas oil. See abstract, lines 7-8 and column 5, lines 60-65.

Several differences are noted between the reference of Absil et al.(5,465,821) and applicants' claimed invention. Absil et al.(5,456,821) does not disclose applicants' aluminophosphate modifying components. In addition, the reference is silent about the specific surface area and pore volume of the catalyst. In addition, the reference does not disclose applicants' claimed ratio of zeolite-Y and alumino-phosphate.

The reference of Pine(3,904,550) discloses that zirconium, cobalt, zinc and vanadium are known to promote aluminum phosphates in cracking reactions. See column 3, lines 1-59.

The reference of Kearby (3,271,299) discloses aluminophosphate materials with surface areas of 200-600 m²/g and pore diameters of 72 angstroms. See column 1, lines 30-35 and 60-65. The disclosed materials are suitable for catalytic cracking. See column 1, lines 45-48. Note: 72 angstroms appears to be an "average" pore diameter. Most likely, the majority of pores (i.e. at least 50%) of pores are about 72 angstroms.

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the catalyst of Absil et al.(5,456,821) to include zirconium, cobalt, zinc and vanadium because the reference of Pine (3,904,550) illustrates that such components are known promoters for aluminum phosphates used in catalytic cracking processes.

In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select an aluminophosphate with a surface area or pore volume

overlapping the parameters selected by applicants because the reference of Kearby (3,271,299) illustrates that such parameters are known to accomplish an effective catalytic cracking process.

Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made that applicants' aluminophosphate/zeolite-Y ratio does not distinguish over the teachings of Absil et al.(5,456,821) because Absil et al.(5,456,821) equates aluminophosphates and Zeolite-Y. As a result, any ratio of components is considered to accomplish a similar conversion.

Claim Rejections - 35 USC § 103

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kowalski et al.(5,888,378) in view of Pine (3,904,550) and Kearby (3,271,299).

Applicants are claiming a process for the catalytic cracking of a hydrocarbon in the presence of a large pore aluminophosphate catalyst.

The reference of Kowalski (5,888,378) discloses a process for catalytic cracking of a hydrocarbon employing a large pore phosphorous containing zeolite (ALPO) and/or zeolite-Y. See abstract, lines 1-8 and column 3, lines 10-45. The large pore zeolite has a pore size of greater than 7 angstroms. See abstract. The process is suitable for producing gasoline from heavier hydrocarbons. See column 1, lines 10-14.

Several differences are noted between the reference of Kowalski et al.(5,888,378) and applicants' claimed invention. Kowalski et al.(5,888,378) does not disclose applicants' aluminophosphate modifying components. In addition, the reference is silent about the specific

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surface area and pore volume of the catalyst. Furthermore, the reference does not disclose applicants' claimed ratio of zeolite-Y and alumino-phosphate.

The reference of Pine (3,904,550) discloses that the zirconium, cobalt, zinc and vanadium are known to promote aluminum phosphates in cracking reactions. See column 3, lines 1-59.

The reference of Kearby et al.(3,271,299) discloses aluminophosphate materials with surface areas of 200-600 m²/g and pore diameters of 72 angstroms. See column 1, lines 30-35 and 60-65. The disclosed materials are suitable for catalytic cracking. See column 1, lines 45-58. Note: 72 angstroms appears to be the "average" pore diameter. Most likely, the majority of pores (i.e. at least 50%) of pores are about 72 angstroms.

It would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the catalyst of Kowalski et al.(5,888,378) to include zirconium, cobalt, zinc and vanadium because the reference of Pine (3,904,550) illustrates that such components are known promoters for aluminum phosphates used in catalytic cracking process.

In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select an aluminophosphate with a surface area or pore volume overlapping the parameters overlapping the parameters selected by applicants because the reference of Kearby (3,271,299) illustrates that such components are known to accomplish an effective catalytic cracking process.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that applicants' aluminophosphate/zeolite-Y ratio does not distinguish over the teachings of Kowalski (5,888,378) because Kowalski (5,888,378) because Kowalski (5,888,378)

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equates aluminophosphates and zeolite-Y. As a result, any ratio of components is considered to accomplish a similar conversion.

Prior Art of Record

The prior art made of record, Pines (4,584,091) and Smith (5,972,203), and not relied upon is considered pertinent to applicants' disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadine Preisch whose telephone number is 703-305-2667. The examiner can normally be reached on Monday through Thursday from 7:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-5408 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

N.P.

January 17, 2002

**NADINE PREISCH
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